IN THE CLAIMS:

1. (Original) A method for creating and maintaining a plurality of virtual servers within a server, the method comprising the steps of:

partitioning resources of the server to establish an instance of each virtual server; and

enabling controlled access to the resources using logical boundary checks and security interpretations of those resources within the server.

2. (Original) The method of Claim 1 wherein the step of partitioning comprises the steps of:

allocating dedicated resources of the server to each instance of the virtual server; and

sharing common resources of the server among all of the virtual servers.

3. (Original) The method of Claim 2 wherein the dedicated resources are units of storage and network addresses of network interfaces of the server.

4. (Original) The method of Claim 3 wherein the common resources are an operating system and a file system of the server.

5. (Original) The method of Claim 4 wherein the server is a filer and wherein the virtual servers are virtual filers (vfilers).

6. (Previously Presented) A method for creating and maintaining a plurality of virtual servers within a server, the method comprising the steps of:

3   partitioning resources of the server to establish an instance of each virtual server

4   by allocating units of storage and network addresses of network interfaces of the server to

5   each instance of the virtual server, and sharing an operating system and a file system of

6   the server among all of the virtual servers;

7   enabling controlled access to the resources using logical boundary checks and se-

8   curity interpretations of those resources within the server; and

9   providing a vfiler context structure including information pertaining to a security

10   domain of the vfiler.

1   7. (Original) The method of Claim 6 wherein the step of allocating comprises the step of

2   providing a vfstore list of the vfiler context structure, the vstore list comprising pointers

3   to vfstore soft objects, each having a pointer that references a path to a unit of storage al-

4   located to the vfiler.

1   8. (Original) The method of Claim 7 wherein the step of allocating further comprises the

2   step of providing a vfnet list of the vfiler context structure, the vfnet list comprising

3   pointers to vfnet soft objects, each having a pointer that references an interface address

4   data structure representing a network address assigned to the vfiler.

1   9. (Original) The method of Claim 8 wherein the step of enabling further comprises the

2   step of performing a vfiler boundary check to verify that a vfiler is allowed to access cer-

3   tain storage resources of the filer.

1   10. (Original) The method of Claim 9 wherein the step of performing comprises the step

2   of validating a file system identifier and qtree identifier associated with the units of stor-

3   age.

1   11. (Original) The method of Claim 10 wherein the step of performing further comprises

2   the steps of:

3   for each request to access a unit of storage, using the identifiers to determine

4   whether the vfiler is authorized to access the unit of storage;

5   if the vfiler is not authorized to access the requested unit of storage, immediately

6   denying the request;

7   otherwise, allowing the request; and

8   generating file system operations to process the request.

1   12. (Original) A system adapted to create and maintain a plurality of virtual servers

2   within a server, the system comprising:

3   storage media configured to store information as units of storage resources, the

4   units of storage resources allocated among each of the virtual servers;

5   network interfaces assigned one or more network address resources, the network

6   address resources allocated among each of the virtual servers;

7   an operating system having a file system resource adapted to perform a boundary

8   check to verify that a request is allowed to access to certain units of storage resources on

9   the storage media, each virtual server allowed shared access to the file system; and

10   a processing element coupled to the network interfaces and storage media, and

11   configured to execute the operating and file systems to thereby invoke network and stor-

12   age access operations in accordance with results of the boundary check of the file system.

1   13. (Previously Presented) A system adapted to create and maintain a plurality of virtual

2   servers within a server, the system comprising:

3   storage media configured to store information as units of storage resources, the

4   units of storage resources allocated among each of the virtual servers;

5   network interfaces assigned one or more network address resources, the network

6   address resources allocated among each of the virtual servers;

7   an operating system having a file system resource adapted to perform a boundary

8   check to verify that a request is allowed to access to certain units of storage resources on

9   the storage media, each virtual server allowed shared access to the file system;

10   a context data structure provided to each virtual server, the context data structure

11   including information pertaining to a security domain of the virtual server that enforces

12   controlled access to the allocated and shared resources; and

13   a processing element coupled to the network interfaces and storage media, and

14   configured to execute the operating and file systems to thereby invoke network and stor-

15   age access operations in accordance with results of the boundary check of the file system.

1   14. (Original) The system of Claim 13 wherein the units of storage resources are volumes

2   and qtrees.

1   15. (Original) The system of Claim 14 further comprising a plurality of table data struc-

2   tures accessed by the processing element to implement the boundary check, the table data

3   structures including a first table having a plurality of first entries, each associated with a

4   virtual server and accessed by a file system identifier (fsid) functioning as a first key into

5   the table, each first entry of the first table denoting a virtual server that completely owns

6   a volume identified by the fsid.

1   16. (Original) The system of Claim 15 wherein the table data structures further include a

2   second table having a plurality of second entries, each associated with a virtual server and

3   accessed by a second key consisting of an fsid and a qtree identifier (qtreeid), each sec-

4   ond entry of the second table denoting a virtual server that completely owns a qtree iden-

5   tified by the fsid and qtreeid.

1   17. (Original) The system of Claim 16 wherein the server is a filer and wherein the vir-

2   tual servers are virtual filers.

1   18. (Original) Apparatus adapted to create and maintain a plurality of virtual filers (vfil-

2   ers) within a filer, the apparatus comprising:

3   means for allocating dedicated resources of the filer to each vfiler;

4 means for sharing common resources of the filer among all of the vfilers; and

5   means for enabling controlled access to the dedicated and shared resources using

6 logical boundary checks and security interpretations of those resources within the server.

1 19. (Original) The apparatus of Claim 18 wherein the means for enabling comprises

2 means for performing a vfiler boundary check to verify that a vfiler is allowed to access

3 certain dedicated resources of the filer.

1 20. (Previously Presented) Apparatus adapted to create and maintain a plurality of virtual

2 filers (vfilers) within a filer, the apparatus comprising:

3   means for allocating dedicated resources of the filer to each vfiler;

4   means for sharing common resources of the filer among all of the vfilers; and

5   means for enabling controlled access to the dedicated and shared resources using

6   logical boundary checks and security interpretations of those resources within the

7   server and for providing a vfiler context structure including information pertain-

8   ing to a security domain of the vfiler.

1 21. (Previously Presented) A computer readable medium containing executable program

2 instructions for creating and maintaining a plurality of virtual filers (vfilers) within a filer,

3 the executable program instructions comprising program instructions for:

4   allocating dedicated resources of the filer to each vfiler;

5   sharing common resources of the filer among all of the vfilers; and

6   enabling access to the dedicated and shared resources using logical boundary

7 checks and security interpretations of those resources within the server.

1 22. (Original) The computer readable medium of Claim 21 wherein the program instruc-

2 tion for enabling comprises a program instruction for performing a vfiler boundary check

3 to verify that a vfiler is allowed to access certain dedicated resources of the filer.

1   23. (Previously Presented) A computer readable medium containing executable program

2   instructions for creating and maintaining a plurality of virtual filers (vfilers) within a filer,

3   the executable program instructions comprising program instructions for:

4   allocating dedicated resources of the filer to each vfiler;

5   sharing common resources of the filer among all of the vfilers; and

6   enabling access to the dedicated and shared resources using logical boundary

7   checks and security interpretations of those resources within the server and providing a

8   vfiler context structure including information pertaining to a security domain of the

9   vfiler.

1   24. (Previously Presented) Electromagnetic signals propagating on a computer network

2   containing executable program instructions for creating and maintaining a plurality of

3   virtual filers (vfilers) within a filer, the executable program instructions comprising pro-

4   gram instructions for:

5   allocating dedicated resources of the filer to each vfiler;

6   sharing common resources of the filer among all of the vfilers; and

7   enabling access to the dedicated and shared resources using logical boundary

8   checks and security interpretations of those resources within the server.

1   25. (Previously Presented) Electromagnetic signals propagating on a computer network

2   containing executable program instructions for creating and maintaining a plurality of

3   virtual filers (vfilers) within a filer, the executable program instructions comprising pro-

4   gram instructions for:

5   allocating dedicated resources of the filer to each vfiler;

6   sharing common resources of the filer among all of the vfilers; and

7   enabling access to the dedicated and shared resources using logical boundary checks and

8   security interpretations of those resources within the server and providing a vfiler context

9   structure including information pertaining to a security domain of the vfiler.